



Biomedical Engineering Seminar Series

1st Semester, Academic Year 2019

Date: November 10, 2019

Time: 11.00 AM – 12.00 AM

Room 6373, 3rd level, Building 3,
Faculty of Engineering; Mahidol University



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“Bioengineering in Dentistry: A review of CAD/CAM and Nanotechnology Applications”

Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) was first introduced to dentistry in the mid-1980s for the fabrication of fixed dental prostheses. In recent years, CAD/CAM technology has been steadily developing and playing an essential role in various purposes in dentistry. In prosthodontics and restorative dentistry, CAD/CAM technology has dramatically improved in regard to both data acquisition and fabrication of dental restorations, e.g. removable partial dentures, fixed partial dentures, and complete dentures. This innovation also allows dentists and dental technicians to virtually design and fabricate dental prostheses. CAD/CAM technology, minimizing human intervention and manipulation of materials, offers greater accuracy and better precision of prostheses, which leads to more promising treatment outcome.

Nanotechnology is evolving constantly in several areas including dental field. Its potential applications and benefits have been compared to the conventional use. For example, antimicrobial activity of metallic nanoparticles has been developed against the major pathogens in dental caries and periodontal diseases. Other possible use of nanoparticles in dental treatments includes incorporation into the restorative materials to gain better characteristics.

Optimal utilization of advantage offered by bioengineering is foreseen to change dental health care in a fundamental way. Novel materials and methods could be potential selections to get favorable dental practice. The lecture will illustrate the possible application, workflow, and treatment outcome of these technologies focusing on prosthodontic treatments.

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